

REMARKS

The pending claims are 1-8. Claims 1 and 5 have been amended for reasons explained below. No new matter has been introduced therein.

The drawings stand objected to under 37 C.F.R. § 1.83(a). More specifically, the Office Action indicates that the drawings must show 1) the rotor portions arranged in such a manner that current phases for generating their maximum torque become in the same phase, and 2) the stator winding of distributed winding and/or concentrated winding.

Applicants respectfully submit that the above-recited feature relating to "the rotor portions" is disclosed in the originally filed application at original Figure 6 and at page 29, lines 11 through page 30, line 8. Figure 6 illustrates phase shift 17, which is between first rotator portion 2 and second rotator portion 3 (See page 29, lines 17-24). Phase shift 17 between first rotator portion 2 and second rotator portion 3 results in their current phases being in electrical phase with one another (See page 29, lines 17-20).

Based on the objection under 37 C.F.R. § 1.83(a), Figure 6 has been amended to more clearly illustrate the phase shift between first rotator portion 2 and second rotator portion 3. Amended Figure 6 illustrates first rotator portion 2 (disclosed in originally filed application at Figure 2) phase shifted from second rotator portion 3 (disclosed in originally filed application at Figure 6) by a phase shift 17. Each feature of amended Figure 6 has been previously disclosed in original Figure 6, Figure 2, and/or the originally filed specification (e.g., page 29, lines 11 through page 30, line 8). As such, no new matter has been added.

With regard to the stator winding being a distributed and/or concentrated winding, Applicants submit that this feature is disclosed in the originally filed application at Figure 1, at page 14, lines 18-21, and at page 30, lines 12-15; however, in order to more clearly illustrate that the stator winding can be a distributed winding, Figure 22 has been added showing a typical distributed winding. Each feature of newly added Figure 22 had been previously disclosed in original Figures 1-2 and/or the originally filed specification (e.g., page 30, lines 12-15), and as such, no new matter has been added.

Applicants respectfully submit that the drawings are now in full compliance with the rules.

Claim 5 stands rejected under 35 U.S.C. § 112, first paragraph, as based on a non-enabling disclosure. More specifically, the Office Action that the "explanation on how the first rotator portion and the second rotator portion are arranged adjacent to each other in such a manner that current phases for generating their both maximum torque become actually in the same phase ...is not enabled by the disclosure." Claim 5 has been amended to more clearly recite this feature, which is supported in the originally filed application at page 29, lines 17-20.

Claim 5 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. More specifically, the Office Action indicates that it is unclear what is meant by "current phases" in the rotator portions of the motor. Claim 5 has been amended to more clearly recite this feature, which is supported in the originally filed application at page 29, lines 17-20.

Claims 1-6 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Nishiyama et al. (JP 2000050584). Claims 7-8 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Nishiyama in view of Mildice (U.S. Patent No. 6,252,331).

Applicants' invention, as recited by amended claim 1, includes features which are neither disclosed nor suggested by the art of record, for example:

... at least two of said first rotator portions being separated in a direction of a longitudinal axis of a rotating shaft by at least one of said second rotator portions ...

This means that the motor recited in claim 1 includes two first rotator portions 2, each having a permanent magnet 1. The first rotator portions 2 are separated by a second rotator portion 3 having magnetic saliency in a direction of a longitudinal axis of a rotating shaft 4. These features are disclosed in the originally filed application at page 23, lines 5-14, and at Figure 1. No new matter has been added.

In contrast, Nishiyama discloses one first rotator portion 2 (including permanent magnet 6) surrounded by two second rotator portions 3 (See Figure 1). As such, Nishiyama teaches a very different configuration from that recited by claim 1 of the present invention. Mildice does not make up for the deficiencies of Nishiyama, and as such, even by combining Nishiyama and Mildice, Applicants' claimed motor is not achieved.


It is because Applicants include the above-recited structure of claim 1, that the following advantages are achieved. A motor for generating magnetic torque is provided with an improved path 90 for high magnetic flux to pass (low reluctance), and an improved path 91 for blocking magnetic flux (high reluctance) (See originally filed application, page 24, lines 1-12 and Figure 2).

Accordingly, for the reasons set forth above, claim 1 is patentable over the art of record. Claims 2-8 include all of the features of claim 1 from which they depend, either directly or indirectly. Thus, claims 2-8 are also patentable over the art of record for the reasons set forth above.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,

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CMS:kc

Enclosure: Version With Markings To Show Changes Made
Amended Figure 6
Newly Added Figure 22

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

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SPECIFICATION:

Specification at page 30, line 12:

Figure 22 is a front view of a motor including a stator having a distributed winding in accordance with an exemplary embodiment of the present invention;

Specification at page 30, line 12:

Also, the stator winding 6 is made into a distributed winding (as illustrated in Figure 22), whereby a motor further having small cogging torque and torque ripple in addition to the above-described effects can be obtained.

IN THE CLAIMS:

1. (As Amended) A motor, comprising:

a rotor, comprising a plurality of first rotator portions, each having a permanent magnet, and one or a plurality of second rotator portions, each having magnetic saliency, ~~said first and second rotator portions been arranged adjacent to each other in a direction of a rotating shaft~~ at least two of said first rotator portions being separated in a direction of a longitudinal axis of a rotating shaft by at least one of said second rotator portions; and

a stator which generates a magnetic field for driving said rotor when electric current is supplied.

5. (As Amended) The motor according to claim 1, wherein said first rotator portion and said second rotator portion are arranged adjacent to each other in such a manner that current phases for generating ~~their both maximum torque become actually in the same phase~~ for both the first rotator portion and the second rotator portion are in electrical phase with one another.



Fig. 6

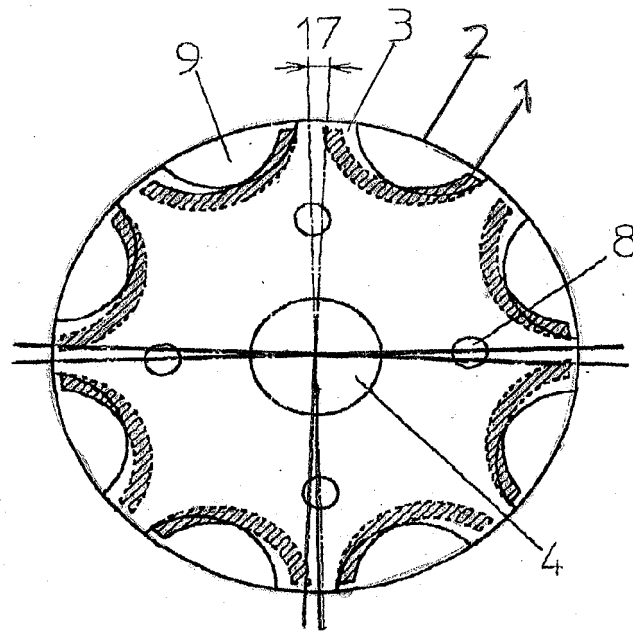


Fig. 22

